```
FULL ESTIMATED COST                                    0.21        0.21

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FILE 'BIOSIS' ENTERED AT 10:13:03 ON 16 AUG 2002
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=> s oxbutyrate
L1             0 OXBUTYRATE

=> s oxobutyrate and plant
L2            54 OXOBUTYRATE AND PLANT

=> duplicate remove l2
DUPLICATE PREFERENCE IS 'AGRICOLA, BIOSIS, CAPLUS, EMBASE'
KEEP DUPLICATES FROM MORE THAN ONE FILE?  Y/(N):n
PROCESSING COMPLETED FOR L2
L3            37 DUPLICATE REMOVE L2 (17 DUPLICATES REMOVED)

=> d l3 1-10

L3   ANSWER 1 OF 37  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN   2002:232069  BIOSIS
DN   PREV200200232069
TI   Characterization of the aromatic profile in aqueous essence and fruit
     juice of yellow passion fruit (Passiflora edulis Sims F. Flavicarpa
     degner) by GC-MS and GC/O.
AU   Jordan, Maria J.; Goodner, Kevin L. (1); Shaw, Philip E.
CS   (1) Citrus and Subtropical Products Laboratory, U.S. Department of
     Agriculture, 600 Avenue S, N.W., Winter Haven, FL, 33881:
     goodner@citrus.usda.gov USA
SO   Journal of Agricultural and Food Chemistry, (March 13, 2002) Vol. 50, No.
     6, pp. 1523-1528. http://pubs.acs.org/journals/jafcau. print.
     ISSN: 0021-8561.
DT   Article
LA   English

L3   ANSWER 2 OF 37  CAPLUS  COPYRIGHT 2002 ACS
AN   2001:624164  CAPLUS
DN   135:195498
TI   Preparation of indole derivatives
IN   Yokoyama, Mineyuki; Yamaguchi, Shoko; Iida, Toshiyuki; Kobayashi, Koji
PA   Shiseido Co., Ltd., Japan
SO   Jpn. Kokai Tokkyo Koho, 7 pp.
     CODEN: JKXXAF
DT   Patent
LA   Japanese
FAN.CNT 1
     PATENT NO.         KIND  DATE           APPLICATION NO.  DATE
     ---------------    ----  --------       ---------------  --------
PI   JP 2001233856       A2   20010828       JP 2000-47141    20000224
OS   CASREACT 135:195498; MARPAT 135:195498

L3   ANSWER 3 OF 37  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE
     1
AN   2001:473120  BIOSIS
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DN PREV200100473120
TI 1-Aminocyclopropane-1-carboxylate synthase of Penicillium citrinum: Primary structure and expression in Escherichia coli and Saccharomyces cerevisiae.
AU Kakuta, Yukiko; Igarashi, Toshinori; Murakami, Toyotaka; Ito, Hiroyuki; Matsui, Hirokazu (1); Honma, Mamoru
CS (1) Graduate School of Agriculture, Hokkaido University, Sapporo, 060-8589: mhiro@chem.agr.hokudai.ac.jp Japan
SO Bioscience Biotechnology and Biochemistry, (July, 2001) Vol. 65, No. 7, pp. 1511-1518. print.
ISSN: 0916-8451.
DT Article
LA English
SL English

L3 ANSWER 4 OF 37 CAPLUS COPYRIGHT 2002 ACS
AN 2000:658481 CAPLUS
DN 133:238025
TI Preparation of azinyl phenyl ethers as herbicides and **plant** desiccants.
IN Pulman, David A.; Ying, Bai-Ping; Wu, Shao-Yong; Gupta, Sandeep; Tsukamoto, Masamitsu; Haga, Takahiro
PA Ishihara Sangyo Kaisha, Ltd., Japan
SO U.S., 47 pp., Cont.-in-part of U.S. Ser. No. 151,306.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6121201	A	20000919	US 1998-159233	19980923
	US 6303543	B1	20011016	US 2000-570911	20000515
PRAI	US 1998-151306	A2	19980911		
	US 1998-159233	A3	19980923		

OS MARPAT 133:238025
RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 37 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 2
AN 2000:240951 BIOSIS
DN PREV200000240951
TI 1-aminocyclopropane-1-carboxylate (ACC) deaminase induced by ACC synthesized and accumulated in Penicillium citrinum intracellular spaces.
AU Jia, Yan-Jun (1); Ito, Hiroyuki; Matsui, Hirokazu; Honma, Mamoru
CS (1) Graduate School of Agriculture, Hokkaido University, Sapporo, 060-8589 Japan
SO Bioscience Biotechnology and Biochemistry, (Feb., 2000) Vol. 64, No. 2, pp. 299-305.
ISSN: 0916-8451.
DT Article
LA English
SL English

L3 ANSWER 6 OF 37 CAPLUS COPYRIGHT 2002 ACS
AN 1999:35006 CAPLUS
DN 130:106028
TI Use of DNA encoding plastid pyruvate dehydrogenase and branched chain oxoacid dehydrogenase components to enhance polyhydroxyalkanoate biosynthesis in **plants**
IN Randall, Douglas R.; Johnston, Mark L.; Miernyk, Jan A.; Luethy, Michael H.; Mooney, Brian P.
PA University of Missouri, USA
SO PCT Int. Appl., 151 pp.

CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9900505	A1	19990107	WO 1998-US13406	19980630
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9884731	A1	19990119	AU 1998-84731	19980630
	US 6143561	A	20001107	US 1998-108020	19980630
PRAI	US 1997-51291P	P	19970630		
	US 1997-55255P	P	19970801		
	US 1998-76544P	P	19980302		
	US 1998-76554P	P	19980302		
	WO 1998-US13406	W	19980630		

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 7 OF 37 CAPLUS COPYRIGHT 2002 ACS
AN 1999:409262 CAPLUS
DN 131:87918
TI Preparation of azole derivatives as herbicides
IN Sato, Kazuo; Sano, Hiroki; Komai, Hiroyuki; Kudo, Noriaki; Morimoto, Munetsugu; Kadotani, Junji
PA Sankyo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 84 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11171877	A2	19990629	JP 1998-245784	19980831
PRAI	JP 1997-235848		19970901		

OS MARPAT 131:87918

L3 ANSWER 8 OF 37 AGRICOLA DUPLICATE 3
AN 2000:14113 AGRICOLA
DN IND22022414
TI Physiological consequences of mutation for ALS-inhibitor resistance.
AU Eberlein, C.V.; Guttieri, M.J.; Berger, P.H.; Fellman, J.K.; Mallory-Smith, C.A.; Thill, D.C.; Baerg, R.J.; Belknap, W.R.
CS University of Idaho, Twin Falls.
AV DNAL (79.8 W41)
SO Weed science, July/Aug 1999. Vol. 47, No. 4. p. 383-392
Publisher: Lawrence, KS : Weed Science Society of America.
CODEN: WEESA6; ISSN: 0043-1745
NTE Includes references
CY Kansas; United States
DT Article
FS U.S. Imprints not USDA, Experiment or Extension
LA English

L3 ANSWER 9 OF 37 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1999:450939 BIOSIS
DN PREV199900450939
TI Synthesis, characterization and antimicrobial evaluation of ethyl

2-arylhydrazono-3-**oxobutyrates**.
AU Kucukguzel, S. Guniz; Rollas, Sevim (1); Erdeniz, Habibe; Kiraz, Muammer
CS (1) Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Marmara University, Tibbiye cad. 81010, Haydarpasa, Istanbul Turkey
SO European Journal of Medicinal Chemistry, (Feb., 1999) Vol. 34, No. 2, pp. 153-160.
ISSN: 0223-5234.
DT Article
LA English
SL English

L3 ANSWER 10 OF 37 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1999:247306 BIOSIS
DN PREV199900247306
TI Reduction of beta-keto esters with a reductase: Construction of plural stereocenters remote from the reaction center.
AU Kawai, Yasushi (1); Hida, Kouichi; Ohno, Atsuyoshi
CS (1) Institute for Chemical Research, Kyoto University, Uji, Kyoto, 611-0011 Japan
SO Bioorganic Chemistry, (Feb., 1999) Vol. 27, No. 1, pp. 3-19.
ISSN: 0045-2068.
DT Article
LA English
SL English

=> s l3 and 2-oxobutyrate
L4 16 L3 AND 2-OXOBUTYRATE

=> d l4 1-16

L4 ANSWER 1 OF 16 AGRICOLA
AN 2000:14113 AGRICOLA
DN IND22022414
TI Physiological consequences of mutation for ALS-inhibitor resistance.
AU Eberlein, C.V.; Guttieri, M.J.; Berger, P.H.; Fellman, J.K.; Mallory-Smith, C.A.; Thill, D.C.; Baerg, R.J.; Belknap, W.R.
CS University of Idaho, Twin Falls.
AV DNAL (79.8 W41)
SO Weed science, July/Aug 1999. Vol. 47, No. 4. p. 383-392
Publisher: Lawrence, KS : Weed Science Society of America.
CODEN: WEESA6; ISSN: 0043-1745
NTE Includes references
CY Kansas; United States
DT Article
FS U.S. Imprints not USDA, Experiment or Extension
LA English

L4 ANSWER 2 OF 16 AGRICOLA
AN 1999:15022 AGRICOLA
DN IND21965730
TI Biosynthesis of 2-aceto-2-hydroxy acids: acetolactate synthases and acetohydroxyacid synthases.
AU Chipman, D.; Barak, Z.; Schloss, J.V.
CS Ben Gurion University of the Negev, Beer Sheva, Israel.
AV DNAL (381 B522)
SO Biochimica et biophysica acta = International journal of biochemistry and biophysics, June 29, 1998. Vol. 1385, No. 2. p. 401-419
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: BBACAQ; ISSN: 0006-3002
NTE Includes references
CY Netherlands
DT Article; Law
FS Non-U.S. Imprint other than FAO

LA English

L4 ANSWER 3 OF 16 AGRICOLA
AN 95:32822 AGRICOLA
DN IND20460545
TI Repression of acetolactate synthase activity through antisense inhibition.
AU Hofgen, R.; Laber, B.; Schuttke, I.; Klonus, A.K.; Streber, W.; Pohlenz, H.D.
CS Max-Planck-Institut fur Molekulare Pflanzenphysiologie, Potsdam, Germany.
AV DNAL (450 P692)
SO Plant physiology, Feb 1995. Vol. 107, No. 2. p. 469-477
Publisher: Rockville, MD : American Society of Plant Physiologists, 1926-
CODEN: PLPHAY; ISSN: 0032-0889
NTE Includes references
CY Maryland; United States
DT Article; Conference
FS U.S. Imprints not USDA, Experiment or Extension
LA English

L4 ANSWER 4 OF 16 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:473120 BIOSIS
DN PREV200100473120
TI 1-Aminocyclopropane-1-carboxylate synthase of Penicillium citrinum: Primary structure and expression in Escherichia coli and Saccharomyces cerevisiae.
AU Kakuta, Yukiko; Igarashi, Toshinori; Murakami, Toyotaka; Ito, Hiroyuki; Matsui, Hirokazu (1); Honma, Mamoru
CS (1) Graduate School of Agriculture, Hokkaido University, Sapporo, 060-8589: mhiro@chem.agr.hokudai.ac.jp Japan
SO Bioscience Biotechnology and Biochemistry, (July, 2001) Vol. 65, No. 7, pp. 1511-1518. print.
ISSN: 0916-8451.
DT Article
LA English
SL English

L4 ANSWER 5 OF 16 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2000:240951 BIOSIS
DN PREV200000240951
TI 1-aminocyclopropane-1-carboxylate (ACC) deaminase induced by ACC synthesized and accumulated in Penicillium citrinum intracellular spaces.
AU Jia, Yan-Jun (1); Ito, Hiroyuki; Matsui, Hirokazu; Honma, Mamoru
CS (1) Graduate School of Agriculture, Hokkaido University, Sapporo, 060-8589 Japan
SO Bioscience Biotechnology and Biochemistry, (Feb., 2000) Vol. 64, No. 2, pp. 299-305.
ISSN: 0916-8451.
DT Article
LA English
SL English

L4 ANSWER 6 OF 16 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1998:126857 BIOSIS
DN PREV199800126857
TI Identification and stereospecificity of the first three enzymes of 3-dimethylsulfoniopropionate biosynthesis in a chlorophyte alga.
AU Summers, Peter S.; Nolte, Kurt D.; Cooper, Arthur J. L.; Borgeas, Heidi; Leustek, Thomas; Rhodes, David; Hanson, Andrew D. (1)
CS (1) Horticultural Sci. Dep., Univ. Florida, Gainesville, FL 32611 USA
SO Plant Physiology (Rockville), (Jan., 1998) Vol. 116, No. 1, pp. 369-378.
ISSN: 0032-0889.
DT Article
LA English

L4 ANSWER 7 OF 16 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1998:84107 BIOSIS
DN PREV199800084107
TI S-methylmethionine conversion to dimethylsulfoniopropionate: Evidence for an unusual transamination reaction.
AU Rhodes, David; Gage, Douglas A.; Cooper, Arthur J. L.; Hanson, Andrew D. (1)
CS (1) Horticultural Sci. Dep., Univ. Florida, Gainesville, FL 32611 USA
SO Plant Physiology (Rockville), (Dec., 1997) Vol. 115, No. 4, pp. 1541-1548. ISSN: 0032-0889.
DT Article
LA English

L4 ANSWER 8 OF 16 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1990:266122 BIOSIS
DN BA90:8208
TI DIHYDRODIPICOLINATE SYNTHASE OF NICOTIANA-SYLVESTRIS A CHLOROPLAST-LOCALIZED ENZYME OF THE LYSINE PATHWAY.
AU GHISLAIN M; FRANKARD V; JACOBS M
CS LAB. PLANT GENETICS, VRIJE UNIV. BRUSSEL, PAARDENSTR. 65, B-1640 ST.-GENESIUS RODE, BELGIUM.
SO PLANTA (HEIDELB), (1990) 180 (4), 480-486. CODEN: PLANAB. ISSN: 0032-0935.
FS BA; OLD
LA English

L4 ANSWER 9 OF 16 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1988:291804 BIOSIS
DN BA86:20071
TI STEREOSELECTIVITY OF THE INTERACTION OF E-2 PHOSPHOENOLBUTYRATE AND Z-2 PHOSPHOENOLBUTYRATE WITH MAIZE LEAF PHOSPHOENOLPYRUVATE CARBOXYLASE.
AU GONZALEZ D H; ANDREO C S
CS CENTRO ESTUDIOS FOTOSINTETICOS BIOQUIMICOS, UNIV. NAC. ROSARIO, SUIPACHA 531, RA-2000 ROSARIO, ARGENT.
SO EUR J BIOCHEM, (1988) 173 (2), 339-344. CODEN: EJBCAI. ISSN: 0014-2956.
FS BA; OLD
LA English

L4 ANSWER 10 OF 16 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1987:446393 BIOSIS
DN BA84:102231
TI AMINO ACID METABOLISM OF LEMNA-MINOR L. II. RESPONSES TO CHLORSULFURON.
AU RHODES D; HOGAN A L; DEAL L; JAMIESON G C; HAWORTH P
CS DEP. HORTICULTURE, PURDUE UNIV., WEST LAFAYETTE, INDIANA 47907.
SO PLANT PHYSIOL (BETHESDA), (1987) 84 (3), 775-780. CODEN: PLPHAY. ISSN: 0032-0889.
FS BA; OLD
LA English

L4 ANSWER 11 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 2000:658481 CAPLUS
DN 133:238025
TI Preparation of azinyl phenyl ethers as herbicides and **plant** desiccants.
IN Pulman, David A.; Ying, Bai-Ping; Wu, Shao-Yong; Gupta, Sandeep; Tsukamoto, Masamitsu; Haga, Takahiro
PA Ishihara Sangyo Kaisha, Ltd., Japan
SO U.S., 47 pp., Cont.-in-part of U.S. Ser. No. 151,306. CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI	US 6121201	A	20000919	US 1998-159233	19980923
	US 6303543	B1	20011016	US 2000-570911	20000515
PRAI	US 1998-151306	A2	19980911		
	US 1998-159233	A3	19980923		

OS MARPAT 133:238025
RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 12 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1999:35006 CAPLUS
DN 130:106028
TI Use of DNA encoding plastid pyruvate dehydrogenase and branched chain oxoacid dehydrogenase components to enhance polyhydroxyalkanoate biosynthesis in **plants**
IN Randall, Douglas R.; Johnston, Mark L.; Miernyk, Jan A.; Luethy, Michael H.; Mooney, Brian P.
PA University of Missouri, USA
SO PCT Int. Appl., 151 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9900505	A1	19990107	WO 1998-US13406	19980630
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9884731	A1	19990119	AU 1998-84731	19980630
	US 6143561	A	20001107	US 1998-108020	19980630
PRAI	US 1997-51291P	P	19970630		
	US 1997-55255P	P	19970801		
	US 1998-76544P	P	19980302		
	US 1998-76554P	P	19980302		
	WO 1998-US13406	W	19980630		

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 13 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1998:635622 CAPLUS
DN 129:256468
TI Preparation of diaryl ethers as herbicides and desiccants
IN Pulman, David A.; Ying, Bai-ping; Wu, Shao-yong; Gupta, Sandeep; Shimoharada, Hiroshi; Tsukamoto, Masamitsu
PA Ishihara Sangyo Kaisha Americas, Inc., USA
SO PCT Int. Appl., 130 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9841093	A1	19980924	WO 1998-US209	19980114
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, US, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU,				

TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

	AU 9858161	A1	19981012	AU 1998-58161	19980114
	AU 737360	B2	20010816		
	EP 973395	A1	20000126	EP 1998-901704	19980114
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, RO				
	BR 9808334	A	20000516	BR 1998-8334	19980114
	JP 2001519783	T2	20011023	JP 1998-540479	19980114
	US 6333296	B1	20011225	US 1999-380830	19990910
PRAI	US 1997-818061	A2	19970314		
	US 1997-917682	A2	19970826		
	US 1997-947900	A2	19971009		
	WO 1998-US209	W	19980114		
OS	MARPAT 129:256468				

L4 ANSWER 14 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1997:425802 CAPLUS
DN 127:173598
TI A new route for synthesis of dimethylsulfoniopropionate in marine algae
AU Gage, Douglas A.; Rhodes, David; Nolte, Kurt D.; Hicks, Wayne A.; Leustek, Thomas; Cooper, Arthur J. L.; Hanson, Andrew D.
CS Dep. Biochem., Michigan State Univ., East Lansing, MI, 48824, USA
SO Nature (London) (1997), 387(6636), 891-894
CODEN: NATUAS; ISSN: 0028-0836
PB Macmillan Magazines
DT Journal
LA English

L4 ANSWER 15 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1990:232557 CAPLUS
DN 112:232557
TI Modified branched-chain amino acid pathways give rise to acyl acids of sucrose esters exuded from tobacco leaf trichomes
AU Kandra, Lili; Severson, Ray; Wagner, George Joseph
CS Agron. Dep., Univ. Kentucky, Lexington, KY, 40546-0091, USA
SO Eur. J. Biochem. (1990), 188(2), 385-91
CODEN: EJBCAI; ISSN: 0014-2956
DT Journal
LA English

L4 ANSWER 16 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1988:470470 CAPLUS
DN 109:70470
TI Amino acid metabolism of Lemna minor L. III. Responses to aminooxyacetate
AU Brunk, Dennis G.; Rhodes, David
CS Cent. Plant Environ. Stress Physiol., Purdue Univ., West Lafayette, IN, 47907, USA
SO Plant Physiol. (1988), 87(2), 447-53
CODEN: PLPHAY; ISSN: 0032-0889
DT Journal
LA English

```
=> s ketoacid(w)dehydrogenase(w)complex
L4          304 KETOACID(W) DEHYDROGENASE(W) COMPLEX

=> duplicate remove l4
DUPLICATE PREFERENCE IS 'AGRICOLA, BIOSIS, EMBASE, CAPLUS'
KEEP DUPLICATES FROM MORE THAN ONE FILE?  Y/(N):n
PROCESSING COMPLETED FOR L4
L5          150 DUPLICATE REMOVE L4 (154 DUPLICATES REMOVED)

=> s l5 and E1?
L6           45 L5 AND E1?

=> s l6 and E2?
L7           24 L6 AND E2?

=> d l7 1-24 ab

L7   ANSWER 1 OF 24  AGRICOLA

L7   ANSWER 2 OF 24  AGRICOLA
AB   Levels of expression of two subunits of the liver branched-chain alpha-
     ketoacid dehydrogenase complex in response to
     extremes of dietary protein intake (50% versus 0% protein diet) were
     determined by quantitative immunoblotting. Dietary protein deficiency
     decreased the amount of E1 alpha protein to a greater extent
     than E2 protein. The ratio of E1 alpha to E2
     was below 1 in the liver of animals starved for protein and above 1 in the
     liver of animals fed the high-protein diet. Supplementation of the 0%
     protein diet with 5% leucine (but not 5% valine) had the same effect as
     the 50% protein diet. The extremes of dietary protein also resulted in a
     divergent pattern of expression of the mRNAs for the subunits of the
     complex. The E1 beta message showed the expected corollary of
     being greater in the liver of the high-protein-fed rats than the
     no-protein-fed rats. In contrast, the E2 message was not
     affected by the two extremes of dietary protein and the E1 alpha
     message was greater in the liver of the no-protein-fed rats than the
     high-protein-fed rats. Thus, coordinate regulation of gene expression of
     the subunits of the complex does not occur in response to dietary protein.
     Post-transcriptional regulatory mechanisms most likely determine the
     amount of the complex and the ratio of its subunits. The decrease in
     E1 alpha/E2 protein ratio that occurs in dietary protein
     deficiency may increase sensitivity of the complex to phosphorylation-
     mediated inhibition by branched-chain alpha-ketoacid dehydrogenase kinase.

L7   ANSWER 3 OF 24  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB   The branched-chain alpha-ketoacid dehydrogenase (BCKDH) complex is the
     rate-limiting enzyme in the catabolism of branched-chain amino acids. In
     the present study, we examined the effects of exercise training on the
     activity and enzyme expression of the hepatic BCKDH complex in diabetic
     rats. The rats were prepared by intravenous injections of streptozotocin
     (50 mg/kg BW), and exercise training was accomplished by treadmill running
     for 45 min/d for 4 wk. The total and actual activities of hepatic BCKDH
     complex were significantly increased to apprx160% by 4 wk of diabetes. On
     the other hand, diabetic rats in the trained group had the same level of
     activities as those in the normal rats, indicating that exercise training
     inhibited the diabetes-induced increase in the enzyme activities. The
     activity state (% active form) of the enzyme complex was about 100% in all
     groups and was not affected by diabetes or training. The protein amounts
     of the enzyme subunits (E1alpha and E2) and the
     abundance of mRNA for the E2 subunit, but not for the other
     subunits, in the liver had the same trend as the activities. These results
     suggest that the capacity for branched-chain amino acid catabolism in
     streptozotocin-induced diabetic rats is reduced by exercise training and
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that this modification is associated with the suppression of diabetes-induced BCKDH complex expression in the liver.

L7 ANSWER 4 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Untreated maple syrup urine disease (MSUD) results in mental and physical disabilities and often leads to neonatal death. Newborn-screening programs, coupled with the use of protein-modified diets, have minimized the severity of this phenotype and allowed affected individuals to develop into productive adults. Although inheritance of MSUD adheres to rules for single-gene traits, mutations in the genes for **E1alpha**, **E1beta**, or **E2** of the mitochondrial branched-chain alpha-**ketoacid dehydrogenase complex** can cause the disease. Randomly selected cell lines from 63 individuals with clinically diagnosed MSUD were tested by retroviral complementation of branched-chain alpha-ketoacid dehydrogenase activity to identify the gene locus for mutant alleles. The frequencies of the mutations were 33% for the **E1alpha** gene, 38% for the **E1beta** gene, and 19% for the **E2** gene. Ten percent of the tested cell lines gave ambiguous results by showing no complementation or restoration of activity with two gene products. These results provide a means to establish a genotype/phenotype relationship in MSUD, with the ultimate goal of unraveling the complexity of this single-gene trait. This represents the largest study to date providing information on the genotype for MSUD.

L7 ANSWER 5 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB A family of alpha -**ketoacid dehydrogenase complex** includes alpha -ketoglutarate dehydrogenase (alpha -KGDC), pyruvate dehydrogenase and branched chain alpha -**ketoacid dehydrogenase complexes**. These three complexes are composed of three different component enzymes, alpha -ketoacid decarboxylase (**E1**), dihydrolipoamide acyltransferase (**E2**) and dihydrolipoamide dehydrogenase (E3). We isolated and sequenced cDNA clones for the dihydrolipoamide succinyltransferase (**E2** of alpha -KGDC, designated as DLST) components of the rat and human alpha -KGDCs. The primary structures of the rat and human DLSTs showed close similarity to those of E. coli and A. vinelandii DLSTs. However, the rat and human DLSTs did not contain a sequence motif that had been found as an E3 and/or E1 binding domain in the **E2** components of three alpha -**ketoacid dehydrogenase complexes**, suggesting the lack of the E3 and/or **E1** binding domain in the rat and human DLSTs. The result of phylogenetic tree of the **E2** components of three complexes demonstrated that the lack of the domain in rat and human DLSTs might occur after the mitochondrial symbiosis. Next, we isolated genomic DNA and processed pseudogene of human DLST and determined their entire nucleotide sequences. In situ hybridization analysis demonstrated that the human DLST gene is located on chromosome 14 at q24.2-q24.3 and the pseudogene is located on chromosome 1 at p31. The results of CAT and gel shift assays showed that another protein rather than Sp1 plays a significant role with Ap2 in the transcription - regulation of DLST gene. In addition, we detected polymorphisms in the human DLST gene and found an association of a genotype (ac/ac type) of DLST gene with Alzheimer's disease. Furthermore, we have observed that in the skeletal muscle the DLST is also localized on the plasma membrane and sarcoplasmic reticulum and that the molecule (25 kDa) is smaller than mitochondrial DLST (48 kDa).

L7 ANSWER 6 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Regulation of the mammalian branched-chain alpha-**ketoacid dehydrogenase complex** (BCKAD) occurs under a variety of stressful conditions associated with changes in circulating glucocorticoids. Multiple levels of regulation in hepatocytes, including alteration of the levels of the structural subunits available for assembly (**E1**, alpha-ketoacid decarboxylase; **E2**, dihydrolipoamide acyltransferase; and E3, dihydrolipoamide dehydrogenase),

as well as BCKAD kinase, which serves to phosphorylate the **E1alpha** subunit and inactivate complex activity, have been proposed. The direct role of glucocorticoids in regulating the expression of the murine gene encoding the major BCKAD subunit **E2**, upon which the other BCKAD subunits assemble, was therefore examined. Deletion analysis of the 5' proximal 7.0 kb of the murine **E2** promoter sequence, using **E2** promoter/luciferase expression minigene plasmids introduced into the hepatic H4IIEC3 cell line, suggested a promoter proximal region responsive to glucocorticoid regulation. Linker-scanning mutagenesis combined with deletion analysis established this functional glucocorticoid-responsive unit (GRU) to be located near the murine **E2** proximal promoter site at -140 to -70 bp upstream from the transcription initiation site. The presence of this region in plasmid minigenes, containing varying amounts of the murine genomic sequence 5' upstream from proximal **E2** promoter sequences, conferred 2-10 fold increases in luciferase reporter gene expression in H4IIEC3 cells, whether introduced by transient transfection or following co-selection for stable transfectants. The GRU region itself appeared to contain multiple interacting elements that combine to regulate overall **E2** promoter activity in response to changing physiological conditions associated with varying concentrations of glucocorticoids and likely other hormonal effectors.

L7 ANSWER 7 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AB Maple syrup urine disease (MSUD) was first described in 1954 by Menkes et al. as a progressive neurologic degenerative disorder. In 1960, Dancis et al. established that the metabolic block in MSUD is at the decarboxylation of branched-chain alpha-ketoacids derived from leucine, isoleucine, and valine. The multienzyme complex affected in MSUD, the mitochondrial branched-chain alpha-ketoacid (BCKD) dehydrogenase complex was purified in 1978 to homogeneity in Reed's laboratory. This led to the later cloning of cDNAs and genes for subunits of the human BCKD complex. Genetic heterogeneity in MSUD is now explained by the various mutations that occur in the **E1alpha**, **E1beta**, **E2**, and E3 loci of the BCKD complex. Recently, we found that bacterial chaperonins GroEL and GroES promote folding and assembly of **E1** decarboxylase component of the BCKD complex in Escherichia coli. Pulse-chase labeling in this system showed that a subset of **E1alpha** mutations, notably the homozygous Y393N-alpha in Mennonite MSUD patients, impedes the assembly of the mutant **E1alpha** subunit with normal **E1beta**. The assembly defect is associated with a rapid degradation of the normal **E1beta** subunit in MSUD cells. Retrovirus-mediated transduction of lymphoblasts from a Mennonite MSUD patient with a normal **E1alpha** cDNA resulted in a complete restoration of BCKD activity. This was accompanied by a stabilization of the normal **E1beta** subunit through assembly with recombinant **E1alpha**. The results demonstrated the feasibility of stable correction of **E1alpha** -deficient (type IA) MSUD and provided a basis for the development of gene therapy.

L7 ANSWER 8 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

L7 ANSWER 9 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AB Regulation of the branched chain alpha-**ketoacid dehydrogenase complex**, the rate-limiting enzyme of branched chain amino acid catabolism, involves phosphorylation of 2 amino acid residues (site 1, serine 293; site 2, serine 303). To directly assess the roles played by these sites, site-directed mutagenesis was used to convert these serines to glutamates and/or alanines. Functional **E1** heterotetramers were expressed in Escherichia coli carrying genes for **E1**-alpha and **E1**-beta under control of separate T7 promoters in a dicistronic vector. Mutation of phosphorylation site 1 serine to glutamate inactivated **E1** activity, i.e., mimicked the effect of phosphorylation of site 1. Replacement of the site 1 serine with

alanine greatly increased K-m for the alpha-ketoacid substrate but had no effect on maximum velocity. The site 1 serine to alanine mutant was phosphorylated at site 2, but phosphorylation had no effect upon enzyme activity. Mutation of site 2 serine to either glutamate or alanine also had no effect upon enzyme activity, but phosphorylation of these proteins at site 1 inhibited enzyme activity. **E1** mutated to change both phosphorylation site serines to glutamates was without enzyme activity. The binding affinity of **E1** to the **E2** core was not affected by mutation of the phosphorylation sites to glutamates, suggesting no gross perturbation of the association of **E1** with the **E2** core. The results provide direct evidence that a negative charge at phosphorylation site 1 is responsible for kinase-mediated inactivation of **E1**. Site 2 is silent with respect to regulation of activity by phosphorylation.

L7 ANSWER 10 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AB The response of the murine genes encoding the subunits of branched-chain alpha-**ketoacid dehydrogenase complex** (BCKAD) to changes in dietary protein was determined. Steady-state RNA levels for two of the subunits, **E1**-beta and **E2**, decreased by two- to fourfold in the livers of mice fed 0% protein isocaloric diets compared to the levels observed in mice fed standard (23 %) or high (50 %) protein isocaloric diets. In contrast, the levels of RNA encoding the **E1** -alpha subunit did not change significantly in response to these dietary protein changes. The hepatic decreases in **E1**-beta and **E2** RNA associated with 0% protein isocaloric diets were reversible, with prompt return to baseline levels following 48 hours of 50% protein isocaloric diets ad libitum. In kidney, no significant changes in the RNAs encoding any of the three BCKAD subunits were observed in response to changes in dietary protein. Studies of RNA variations associated with growth and development in several murine tissues, including liver and kidney, demonstrated coordinated changes between all subunits. Similar coordinated changes were observed during 3T3-L1 adipocyte differentiation. These studies suggest that the responses of the BCKAD subunit genes to alterations in dietary protein are noncoordinated and tissue-specific, in contrast to the coordinated changes observed during growth and/or differentiation. The differences in BCKAD subunit RNA levels observed under varying nutritional and developmental conditions suggest that multiple regulatory mechanisms modulate BCKAD subunit expression.

L7 ANSWER 11 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AB Anti-M2 antibodies in primary biliary cirrhosis (PBC) have been shown to react with the alpha-**ketoacid dehydrogenase complex** of the inner mitochondrial membrane consisting of six epitopes (**E2** subunit of the pyruvate dehydrogenase complex (PDC), 70 kD: protein X of the PDC, 56 kD; alpha-ketoglutarate dehydrogenase complex, 52 kD; branched-chain alpha-ketoacid dehydrogenase, 52 kD; **E1** alpha subunit of PDC, 45 kD; and **E1** beta-subunit of PDC, 36 kD). These epitopes are also present in the M2 fraction which is a chloroform extract from beef heart mitochondria. The **E2** subunit of the PDC at 70 kD (M2a), especially, is a major target epitope which is recognized by about 85% of all PBC sera. However, analysing sera from 28 patients with active pulmonary tuberculosis it became evident that 12 (43%) also recognized the PDC-**E2** subunit (M2a), as shown by Western blotting using the M2 fraction, the purified PDC, and the recombinant PDC-**E2**. In contrast, only two of 82 patients with other bacterial and viral infections including 25 patients with Escherichia coli infections reacted with the PBC-specific epitope at 70 kD. Naturally occurring mitochondrial antibodies (NOMA) were present in 54% of the patients with tuberculosis and in 50% of patients with other infectious disorders. They recognized either a determinant at 65 kD (epsilon) or at 60/55 kD (zeta/eta). None of the sera from 100 blood donors had anti-M2 but 14 had NOMA. Testing anti-M2 and NOMA-positive marker sera by Western blotting against membrane fractions derived from

mycobacteria and E. coli it could be shown that sbd like mammalian mitochondria sbd they contain both the PBC-specific M2 antigen as well as the non-PBC-specific naturally occurring mitochondrial antigen system (NOMAg). The observation that PBC-specific antibodies were preferentially induced in patients suffering from a mycobacterial infection may provide some new clues to the still unknown etiology of PBC.

L7 ANSWER 12 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB We have expressed an active recombinant **E1** decarboxylase component of the mammalian branched-chain .alpha.-**ketoacid dehydrogenase complex** in Escherichia coli by subcloning mature **E1**.alpha. and **E1**.beta. subunit cDNA sequences into a bacterial expression vector. To permit affinity purification under native conditions, the mature **E1**.alpha. subunit was fused with affinity ligand E. coli maltose-binding protein (MBP) through an endoprotease Factor Xa-specific linker peptide. When coexpressed, the MBP-**E1**.alpha. fusion and **E1**.beta. subunits were shown to co-purify as a MBP-**E1** component that exhibited both **E1** activity and binding competence for recombinant branched-chain **E2** component. In contrast, in vitro mixing of individually expressed MBP-**E1**.alpha. and **E1**.beta. did not result in assembly or produce **E1** activity. Following proteolytic removal of the affinity ligand and linker peptide with Factor Xa, a recombinant **E1** species was eluted from a Sephacryl S-300HR sizing column as an enymatically active 160-kDa species. The latter showed 1:1 subunit stoichiometry, which was consistent with a .alpha.2.beta.2 structure. The recovery of this 160-kDa recombiinant **E1** species (estimated at 0.07% of total lysate protein) was low, with the majority of the recombinant protein lost as insoluble aggregates. Our findings suggest that the concurrent expression of both **E1**.alpha. and **E1** .beta. subunits in the same cellular compartment is important for assembly of both subunits into a functional **E1** .alpha.2.beta.2 heterotetramer. By using this co-expression system, we also find that the **E1**.alpha. missense mutation (Tyr-393 .fwdarw. Asn) characterized in Mennonites with maple syrup urine disease prevents the assembly of soluble **E1** heterotetramers.

L7 ANSWER 13 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Maple syrup urine disease (MSUD) is an autosomal recessive inherited disease due to a deficiency of any of the subunits, **E1**.alpha., **E1**.beta., or **E2**, of the branched-chain .alpha.-**ketoacid dehydrogenase complex** (BCKDH). A large Mennonite kindred of MSUD has been studied in Pennsylvania, USA. In the present investigation, genomes from 70 members, including 12 patients belonging to eight different Mennonite MSUD pedigrees, were examined for possible abnormalities in the **E1**.alpha. gene of BCKDH, by primer-specified restriction map modification. A T- to -A substitution which generates an asparagine in place of a -tyrosine at amino acid 394 of the mature **E1**.alpha. subunit was present in both alleles in all the patients and in a single allel in all obligate carriers and several siblings. We describe a new technique for rapid for an easy detection of the mutant gene in this population. These family studies provide additional evidence that Mennonite MSUD is caused by a missense mutation of the **E1**.alpha. gene of BCKDH.

L7 ANSWER 14 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB A complementary DNA (cDNA) clone of dihydrolipoamide acetyltransferase (**E2**) of the rat pyruvate dehydrogenase complex (PDC) was isolated from a .lambda.gt11 rat heart cDNA library. The amino acid sequence of a full mature protein of rat PDC-**E2** was predicted by combination of the cDNA nucleotide sequence and the N-terminal amino acid sequence determined chemically. The amino acid sequence of rat PDC-**E2** was well consistent with those of the **E2** components of other .alpha.-**ketoacid dehydrogenase complexes**.

These **E2** components possess the sequence G-X-G-X-X-G, which is the consensus sequence for nucleotide binding sites of nucleotide binding proteins, in the E3 and/or **E1** binding domains. The **E2** components of the three .alpha.-**ketoacid dehydrogenase complexes** are suggested to be classified into three clusters separated during evolution.

L7 ANSWER 15 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

L7 ANSWER 16 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Antibodies against the **E1b** and **E2b** components of bovine branched-chain .alpha.-ketoacid (BCKA) dehydrogenase (BCKAD) complex completely inhibited BCKA oxidation in mammalian and avian mitochondria. BCKA oxidation by salmonid mitochondria was less affected and the enzyme from Pseudomonas putida was unaffected. In rodents, anti-**E1b E2b** IgG inhibited oxidation of all three BCKA in a similar dose-dependent manner; oxidation of .alpha.-ketobutyrate and .alpha.-keto-.gamma.-methiolbutyrate was also partially inhibited. Except for the salmonid BCKAD, a similar Mr for the **E2b** and **E1b** .alpha. proteins was observed in these species. After digestion with V-8 protease similar immunoreactive peptides were observed for the human and rodent complex.

L7 ANSWER 17 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB The native architectures of the pyruvate and 2-oxoglutarate dehydrogenase complexes have been investigated cryoelectron microscopy of unstained, frozen-hydrated specimens. In pyruvate dehydrogenase complex and 2-oxoglutarate complex the transacylase (**E2**) components exist as 24-subunit, cube-shaped assemblies that form the structural cores of the complexes. Multiple copies (12-24) of the .alpha.-ketoacid dehydrogenase (**E1**) and dihydrolipoyl dehydrogenase (E3) components bind to the surface of the cores. Images of the frozen-hydrated enzyme complexes do not appear consistent with a symmetric arrangement of the **E1** and E3 subunits about the octahedrally symmetric **E2** core. Often the **E1** or E3 subunits appear separated from the surface of the **E2** core by 3-5 nm, and sometimes thin bridges of density appear in the gap between the **E2** core and the bound subunits; studies of subcomplexes consisting of the **E2** core from 2-oxoglutarate dehydrogenase complex and **E1** or E3 show that both **E1** and E3 are bound in this manner. Images of the **E2** cores isolated from pyruvate dehydrogenase complex appear surrounded by a faint fuzz that extends .apprx. 10 nm from the surface of the core and likely corresponds to the lipoyl domains of the **E2**.

L7 ANSWER 18 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Sera from patients with primary biliary cirrhosis contain autoantibodies that recognize mitochondrial proteins. Five of the target autoantigens have now been identified as enzymes of three related multienzyme complexes: the pyruvate dehydrogenase complex, the branched chain .alpha.-**ketoacid dehydrogenase complex** and the .alpha.-ketoglutarate dehydrogenase complex. Each complex consists of component enzymes designated **E1**, **E2** and E3. In this report, we confirm that primary biliary cirrhosis sera react with dihydrolipoamide succinyltransferase, the **E2** component of .alpha.-ketoglutarate dehydrogenase complex. Seventy-three of 188 (39%) primary biliary cirrhosis sera reacted with .alpha.-ketoglutarate dehydrogenase complex-**E2** when immunoblotted against purified .alpha.-ketoglutarate dehydrogenase complex; one of these sera also reacted with the **E1** component. In addition, primary biliary cirrhosis sera possessing .alpha.-ketoglutarate dehydrogenase complex-**E2** reactivity specifically inhibited enzyme function of .alpha.-ketoglutarate dehydrogenase complex. Enzyme activity was not affected by primary biliary cirrhosis sera that contained autoantibodies to pyruvate dehydrogenase complex-**E2** and/or branched chain

.alpha.-ketoacid dehydrogenase comples-**E2**, which lacked .alpha.-ketoglutarate dehydrogenase complex-**E2** reactivity. Furthermore, affinity-purified primary biliary cirrhosis sera against .alpha.-ketoglutarate dehydrogenase complex-**E2** inhibited only .alpha.-ketoglutarate dehydrogenase complex activity but did not alter enzyme activity of either pyruvate dehydrogenase complex or branched chain .alpha.-**ketoacid dehydrogenase complex**. Finally, .alpha.-ketoglutarate dehydrogenase complex-**E2** specific affinity-purified antisera did not react on immunoblot with any component enzymes of pyruvate dehydrogenase complex or branched chain .alpha.-**ketoacid dehydrogenase complex**. These data demonstrate that the **E2** component of .alpha.-ketoglutarate dehydrogenase complex is recognized by a distinct population of autoantibodies separate from autoantibodies that recognize pyruvate dehydrogenase complex-**E2** or branched chain .alpha.-**ketoacid dehydrogenase complex-E2**. Our data further suggest that these autoantibodies are directed toward a fnctional domain of this enzyme.

L7 ANSWER 19 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB A new method using hydrophobic interaction chromatography on phenyl-Sepharose was developed to purify branched chain .alpha.-**ketoacid dehydrogenase complex** from commercially available frozen rat liver. Yields of greater than 50% were routinely achieved. The purified enzyme, composed of **E1**.alpha., **E1**.beta., and **E2** subunits, appeared homogeneous on sodium dodecyl sulfate-polyacrylamide gel electrophoresis and contained endogenous kinase activity for phosphorylation and inactivation of the complex.

L7 ANSWER 20 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Limited proteolysis has been used to probe the subunit structure (Mr = 52,000) of the dihydrolipoyl transacylase (**E2**) component of the branched-chain .alpha.-keto acid dehydrogenase complex from bovine liver. Digestion of the complex at 0.degree. C with a low concentration of trypsin produces an inner **E2** core that retains the activity for the transacylation reaction and is completely dissociated from the decarboxylase (**E1**) component. The trypsinized **E2** maintains the highly assembled structure and migrates faster than the native **E2** in the Sepharose 4B column. Sodium dodecyl sulfate-polyacrylamide gel electrophoresis shows that the inner **E2** core consists of two lipoate-free tryptic fragments, i.e. fragment A and fragment B with Mr = 26,000 and 22,000, respectively. Both fragments apparently fail to bind the **E1** component. Fragment A is converted into fragment B by increasing trypsin concentrations. Fragment B is a stable limit polypeptide containing the intersubunit-binding sites for **E2**. The assemblage of fragment B confers the cubelike appearance of the inner **E2** core in electron micrographs. Activity measurements indicate that the larger fragment A, but not fragment B, possesses transacylation activity. It is likely that a critical portion of the active site is present in the 4,000-dalton fragment that is lost during the conversion of fragment A to B.

L7 ANSWER 21 OF 24 CAPLUS COPYRIGHT 2002 ACS
AB Unavailable

L7 ANSWER 22 OF 24 CAPLUS COPYRIGHT 2002 ACS
AB The present invention relates to DNA sequences that encode the branched-chain alpha-**ketoacid dehydrogenase complex** of an organism belonging to the genus Streptomyces and to polypeptides produced by the expression of such sequences. It also relates to methods of enhancing the prodn. of natural avermectin and of producing avermectin through fermn.. The bkd genes for A. avermitilis **E1**.alpha., **E1**.beta., and **E2** subunits were

cloned, sequenced, and expressed in E. coli.

L7 ANSWER 23 OF 24 CAPLUS COPYRIGHT 2002 ACS
AB Levels of expression of two subunits of the liver branched-chain .alpha.-**ketoacid dehydrogenase complex** in response to extremes of dietary protein intake (50% vs. 0% protein diet) were detd. by quant. immunoblotting. Dietary protein deficiency decreased the amt. of **E1**.alpha. protein to a greater extent than **E2** protein. The ratio of **E1**.alpha. to **E2** was below 1 in the liver of animals starved for protein and above 1 in the liver of animals fed the high-protein diet. Supplementation of the 0% protein diet with 5% leucine (but not 5% valine) had the same effect as the 50% protein diet. The extremes of dietary protein also resulted in a divergent pattern of expression of the mRNAs for the subunits of the complex. The **E1** .beta. message showed the expected corollary of being greater in the liver of the high-protein-fed rats than the no-protein-fed rats. In contrast, the **E2** message was not affected by the two extremes of dietary protein and the **E1**.alpha. message was greater in the liver of the no-protein-fed rats than the high-protein-fed rats. Thus, coordinate regulation of gene expression of the subunits of the complex does not occur in response to dietary protein. Posttranscriptional regulatory mechanisms most likely det. the amt. of the complex and the ratio of its subunits. The decrease in **E1**.alpha./**E2** protein ratio that occurs in dietary protein deficiency may increase sensitivity of the complex to phosphorylation-mediated inhibition by branched-chain .alpha.-ketoacid dehydrogenase kinase.

L7 ANSWER 24 OF 24 CAPLUS COPYRIGHT 2002 ACS
AB Ten independent lipoamide dehydrogenase mutants (lpd) of .EPSILON.. coli were isolated by selecting strains which required supplements of acetate plus succinate for best growth on glucose. They did not grow on unsupplemented medium (except anaerobically) nor did they grow with single supplements of acetate or lipoate, but they responded slowly to lysine plus methionine or succinate. Bacteria-free exts. of the mutants had 1-10% of parental lipoamide dehydrogenase activity and no activity for the pyruvate and .varies.-ketoglutarate dehydrogenase complexes was detected. Evidence that the mutants contained the dehydrogenase (**E1**) and transacylase (**E2**) components of the complexes and were deficient only in the lipoamide dehydrogenase (E3) components was obtained from studies with mixts. contg. lpd mutant exts. and either exts. of other mutants having defined lesions or purified lipoamide dehydrogenase, e.g., overall pyruvate dehydrogenase complex was reconstituted with exts. of ace.EPSILON. and F mutants and the .varies.-ketoglutarate complex was similarly reconstituted with suc.ALPHA. and .BETA. exts. Furthermore, both complexes were restored by adding ext. of an ace.EPSILON., suc .ALPHA. double-amber mutants (which lacks both types of **E1** and **E2** component but has 30% of parental lipoamide dehydrogenase activity) or with purified bacterial and mammalian lipoamide dehydrogenases. The bacterial enzymes were several times more efficient than the mammalian enzyme for restoring pyruvate dehydrogenase complex activity. Genetic studies indicated that the wild-type phenotype was restored by single reversion or transduction events and confirmed that the mutants were deficient only in lipoamide dehydrogenase. The mutant phenotype was introduced into a recipient stain by cotransduction with leu+. This indicates that there is a lipoamide dehydrogenase gene in the leu region of the .EPSILON.. coli linkage map and strongly supports the view that the E3 components of both .varies.-**ketoacid dehydrogenase complexes** are specified by a single lipoamide dehydrogenase gene (lpd).

=> d l7 1-24

L7 ANSWER 1 OF 24 AGRICOLA

AN 2000:42877 AGRICOLA
DN IND22051058
TI Isolation and characterization of cDNA clones for the **E1beta** and **E2** subunits of the branched-chain alpha-**ketoacid dehydrogenase complex** in Arabidopsis.
AU Fujiki, Y.; Sato, T.; Ito, M.; Watanabe, A.
CS University of Tokyo, Tokyo, Japan.
AV DNAL (381 J824)
SO The Journal of biological chemistry, Feb 25, 2000. Vol. 275, No. 8. p. 6007-6013
Publisher: Bethesda, Md. : American Society for Biochemistry and Molecular Biology.
CODEN: JBCHA3; ISSN: 0021-9258
NTE Includes references
CY Maryland; United States
DT Article
FS U.S. Imprints not USDA, Experiment or Extension
LA English

L7 ANSWER 2 OF 24 AGRICOLA
AN 94:48646 AGRICOLA
DN IND20400875
TI Effect of dietary protein on the liver content and subunit composition of the branched-chain alpha-**ketoacid dehydrogenase complex**.
AU Zhao, Y.; Popov, K.M.; Shimomura, Y.; Kedishvili, N.Y.; Jaskiewicz, J.; Kuntz, M.J.; Kain, J.; Zhang, B.; Harris, R.A.
AV DNAL (381 Ar2)
SO Archives of biochemistry and biophysics, Feb 1, 1994. Vol. 308, No. 2. p. 446-453
Publisher: Orlando, Fla. : Academic Press.
CODEN: ABBIA4; ISSN: 0003-9861
NTE Includes references
CY Florida; United States
DT Article
FS U.S. Imprints not USDA, Experiment or Extension
LA English

L7 ANSWER 3 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2002:148454 BIOSIS
DN PREV200200148454
TI Modification by exercise training of activity and enzyme expression of hepatic branched-chain alpha-**ketoacid dehydrogenase complex** in streptozotocin-induced diabetic rats.
AU Li, Zhihao; Murakami, Taro; Nakai, Naoya; Nagasaki, Masaru; Obayashi, Mariko; Xu, Ming; Sato, Juichi; Oshida, Yoshiharu; Sato, Yuzo; Shimomura, Yoshiharu (1)
CS (1) Department of Bioscience, Nagoya Institute of Technology, Nagoya, 466-8555: shimo@ks.kyy.nitech.ac.jp Japan
SO Journal of Nutritional Science and Vitaminology, (October, 2001) Vol. 47, No. 5, pp. 345-350. print.
ISSN: 0301-4800.
DT Article
LA English

L7 ANSWER 4 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:69562 BIOSIS
DN PREV200100069562
TI Gene preference in maple syrup urine disease.
AU Nellis, Mary M.; Danner, Dean J. (1)
CS (1) Department of Genetics, Emory University School of Medicine, 1462 Clifton Road, Room 446, Atlanta, GA, 30322: ddanner@emory.edu USA
SO American Journal of Human Genetics, (January, 2001) Vol. 68, No. 1, pp. 232-237. print.

ISSN: 0002-9297.
DT Article
LA English
SL English

L7 ANSWER 5 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2000:425236 BIOSIS
DN PREV200000425236
TI Structure and function of dihydrolipoamide succinyltransferase: Searching a new function of the enzyme.
AU Nakano, Kyoko (1); Ohta, Shigeo; Nakagawa, Shiro; Matuda, Sadayuki
CS (1) Department of Biochemistry, Kagoshima Women's Junior College, Kagoshima, 890-8565 Japan
SO Vitamins (Kyoto), (August, 2000) Vol. 74, No. 8, pp. 411-422. print.
ISSN: 0006-386X.
DT Article
LA Japanese
SL English

L7 ANSWER 6 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2000:254253 BIOSIS
DN PREV200000254253
TI Glucocorticoid regulation of branched-chain alpha-ketoacid dehydrogenase **E2** subunit gene expression.
AU Costeas, Paul A.; Chinsky, Jeffrey M. (1)
CS (1) Department of Pediatrics, University of Maryland School of Medicine, 900 Caton Avenue, Baltimore, MD, 21229 USA
SO Biochemical Journal, (April 15, 2000) Vol. 347, No. 2, pp. 449-457. print..
ISSN: 0264-6021.
DT Article
LA English
SL English

L7 ANSWER 7 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1998:230036 BIOSIS
DN PREV199800230036
TI Maple syrup urine disease: It has come a long way.
AU Chuang, David T. (1)
CS (1) Dep. Biochem., Univ. Tex. Southwestern Med. Cent., Dallas, TX USA
SO Journal of Pediatrics, (March, 1998) Vol. 132, No. 3 PART 2, pp. S17-S23.
ISSN: 0022-3476.
DT Article
LA English

L7 ANSWER 8 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1995:286155 BIOSIS
DN PREV199598300455
TI Recombinant production of the full-sized dihydrolipoyl acetyltransferase core of the human pyruvate dehydrogenase complex.
AU Yang, D.; Song, J.; Wagenknecht, T.; Roche, T. E.
CS Kansas State Univ., Manhattan, KS 66506 USA
SO FASEB Journal, (1995) Vol. 9, No. 6, pp. A1288.
Meeting Info.: Annual Meeting of the American Society for Biochemistry and Molecular Biology San Francisco, California, USA May 21-25, 1995
ISSN: 0892-6638.
DT Conference
LA English

L7 ANSWER 9 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1994:389512 BIOSIS
DN PREV199497402512
TI Site-directed mutagenesis of phosphorylation sites of the branched chain alpha-**ketoacid dehydrogenase complex**.

AU Zhao, Yu; Hawes, John; Popov, Kirill M.; Jaskiewicz, Jerzy; Shimomura, Yoshiharu; Crabb, David W.; Harris, Robert A. (1)
CS (1) Dep. Biochem. Mol. Biol., Indiana Univ. Sch. Med., 635 Barnhill Dr., Indianapolis, IN 46202-5122 USA
SO Journal of Biological Chemistry, (1994) Vol. 269, No. 28, pp. 18583-18587. ISSN: 0021-9258.
DT Article
LA English

L7 ANSWER 10 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1994:126808 BIOSIS
DN PREV199497139808
TI Noncoordinated responses of branched-chain alpha-ketoacid dehydrogenase subunit genes to dietary protein.
AU Chinsky, Jeffrey M. (1); Bohlen, Lizabeth M.; Costeas, Paul A.
CS (1) Div. Human Genetics, Univ. Maryland Sch. Med., 655 West Baltimore St., 11-037, Baltimore, MD 21201 USA
SO FASEB (Federation of American Societies for Experimental Biology) Journal, (1994) Vol. 8, No. 1, pp. 114-120. ISSN: 0892-6638.
DT Article
LA English

L7 ANSWER 11 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1993:321274 BIOSIS
DN PREV199396029624
TI Sera from patients with tuberculosis recognize the M2a-epitope (**E2** -subunit of pyruvate dehydrogenase) specific for primary biliary cirrhosis.
AU Klein, R.; Wiebel, M.; Engelhart, S.; Berg, P. A. (1)
CS (1) Dep. Internal Med., Univ. Tuebingen, Otfried Mueller Str., W-7400 Tuebingen Germany
SO Clinical and Experimental Immunology, (1993) Vol. 92, No. 2, pp. 308-316. ISSN: 0009-9104.
DT Article
LA English

L7 ANSWER 12 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1992:453601 BIOSIS
DN BA94:95001
TI EXPRESSION AND ASSEMBLY OF A FUNCTIONAL **E1** COMPONENT ALPHA-2-BETA-2 OF MAMMALIAN BRANCHED-CHAIN ALPHA **KETOACID DEHYDROGENASE COMPLEX** IN ESCHERICHIA-COLI.
AU DAVIE J R; WYNN R M; COX R P; CHUANG D T
CS DEP. BIOCHEM., UNIV. TEXAS SOUTHWESTN MED. CENTER 5323 HARRY HINES BLVD., DALLAS, TEX. 75235-9038.
SO J BIOL CHEM, (1992) 267 (23), 16601-16606. CODEN: JBCHA3. ISSN: 0021-9258.
FS BA; OLD
LA English

L7 ANSWER 13 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1992:347494 BIOSIS
DN BA94:39719
TI GENE ANALYSIS OF MENNONITE MAPLE SYRUP URINE DISEASE KINDRED USING PRIMER-SPECIFIED RESTRICTION MAP MODIFICATION.
AU MITSUBUCHI H; MATSUDA I; NOBUKUNI Y; HEIDENREICH R; INDO Y; ENDO F; MALLEE J; SEGAL S
CS DEP. PEDIATR., KUMAMOTO UNIV. MED. SCH., HONJO 1-1-1, KUMAMOTO 860, JPN.
SO J INHERITED METAB DIS, (1992) 15 (2), 181-187. CODEN: JIMDDP. ISSN: 0141-8955.
FS BA; OLD
LA English

L7 ANSWER 14 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1992:347258 BIOSIS
DN BA94:39483
TI MOLECULAR CLONING OF DIHYDROLIPOAMIDE ACETYLTRANSFERASE OF THE RAT PYRUVATE DEHYDROGENASE COMPLEX SEQUENCE COMPARISON AND EVOLUTIONARY RELATIONSHIP TO OTHER DIHYDROLIPOAMIDE ACYLTRANSFERASES.
AU MATUDA S; NAKANO K; OHTA S; SHIMURA M; YAMANAKA T; NAKAGAWA S; TITANI K; MIYATA T
CS DEP. BIOL., KANOYA NATL. INST. FITNESS SPORTS, KANOYA, KAGOSHIMA 891-23, JPN.
SO BIOCHIM BIOPHYS ACTA, (1992) 1131 (1), 114-118.
CODEN: BBACAQ. ISSN: 0006-3002.
FS BA; OLD
LA English

L7 ANSWER 15 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1991:308079 BIOSIS
DN BR41:16669
TI CHROMOSOMAL AND REGIONAL LOCALIZATION OF THE **E2** TRANSACYLASE DBT AND **E1**-BETA BCKDHB GENES FOR THE HUMAN BRANCHED CHAIN **KETOACID DEHYDROGENASE COMPLEX**.
AU CHUANG D T; LAU K S; ZNEIMER S M; FISHER C W; EDDY R L; SHOWS T B; COX R P
CS DEP. BIOCHEMISTRY, UT SOUTHWESTERN MED. CENT., DALLAS, TEX. 75235.
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CODEN: FAJOEC. ISSN: 0892-6638.
DT Conference
FS BR; OLD
LA English

L7 ANSWER 16 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1991:112923 BIOSIS
DN BA91:60313
TI PHYLOGENETIC COMPARISONS OF THE BRANCHED-CHAIN ALPHA **KETOACID DEHYDROGENASE COMPLEX**.
AU EISENSTEIN R S; MILLER R H; HOGANSON G; HARPER A E
CS DEP. BIOCHEMISTRY, COLLEGE AGRICULTURAL AND LIFE SCIENCES, UNIVERSITY WISCONSIN-MADISON, MADISON, WIS. 53706, USA.
SO COMP BIOCHEM PHYSIOL B COMP BIOCHEM, (1990) 97 (4), 719-726.
CODEN: CBPBB8. ISSN: 0305-0491.
FS BA; OLD
LA English

L7 ANSWER 17 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1991:112860 BIOSIS
DN BA91:60250
TI CRYOELECTRON MICROSCOPY OF FROZEN-HYDRATED ALPHA **KETOACID DEHYDROGENASE COMPLEXES** FROM ESCHERICHIA-COLI.
AU WAGENKNECHT T; GRASSUCCI R; SCHAAK D
CS WADSWORTH CENT. LAB. RES., NEW YORK STATE DEP. HEALTH, P.O. BOX 509, ALBANY, N.Y. 12201-0509.
SO J BIOL CHEM, (1990) 265 (36), 22402-22408.
CODEN: JBCHA3. ISSN: 0021-9258.
FS BA; OLD
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L7 ANSWER 18 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1990:412724 BIOSIS
DN BA90:73525
TI INHIBITION OF ALPHA KETOGLUTARATE DEHYDROGENASE ACTIVITY BY A DISTINCT POPULATION OF AUTOANTIBODIES RECOGNIZING DIHYDROLIPOAMIDE SUCCINYLTRANSFERASE IN PRIMARY BILIARY CIRRHOSIS.
AU FREGEAU D R; PRINDIVILLE T; COPPEL R L; KAPLAN M; DICKSON E R; GERSHWIN M

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CS DIV. RHEUMATOL., ALLERGY CLIN. IMMUNOL., UNIV. CALIF., TB 192, DAVIS, CA 95616.
SO HEPATOLOGY, (1990) 11 (6), 975-981.
CODEN: HPTLD9. ISSN: 0270-9139.
FS BA; OLD
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L7 ANSWER 19 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1987:336428 BIOSIS
DN BA84:45371
TI PURIFICATION OF BRANCHED CHAIN ALPHA KETO ACID DEHYDROGENASE COMPLEX FROM RAT LIVER.
AU SHIMOMURA Y; PAXTON R; OZAWA T; HARRIS R A
CS DEP. BIOCHEMISTRY, INDIANA UNIV. SCH. MED., INDIANAPOLIS, INDIANA 46233.
SO ANAL BIOCHEM, (1987) 163 (1), 74-78.
CODEN: ANBCA2. ISSN: 0003-2697.
FS BA; OLD
LA English

L7 ANSWER 20 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1986:121177 BIOSIS
DN BA81:31593
TI SUBUNIT STRUCTURE OF THE DIHYDROLIPOYL TRANSACYLASE COMPONENT OF BRANCHED-CHAIN ALPHA **KETOACID DEHYDROGENASE COMPLEX** FROM BOVINE LIVER CHARACTERIZATION OF THE INNER TRANSACYLASE CORE.
AU CHUANG D T; HU C-W C; KU L S; MARKOVITZ P J; COX R P
CS DEP. OF MED. 151-W , VA MED. CENT., 10701 EAST BOULEVARD, CLEVELAND, OHIO 44106.
SO J BIOL CHEM, (1985) 260 (25), 13779-13786.
CODEN: JBCHA3. ISSN: 0021-9258.
FS BA; OLD
LA English

L7 ANSWER 21 OF 24 CAPLUS COPYRIGHT 2002 ACS
AN 2002:40108 CAPLUS
DN 137:75087
TI The mammalian branched chain alpha-**ketoacid dehydrogenase complex**: i. regulation by branched chain alpha-ketoacid dehydrogenase kinase. ii. defects in the **e1alpha**, **e1beta** and **e2** subunits
AU Nellis, Mary Manning
CS Emory Univ., Atlanta, GA, USA
SO (2001) 108 pp. Avail.: UMI, Order No. DA3009460
From: Diss. Abstr. Int., B 2001, 62(3), 1234
DT Dissertation
LA English

L7 ANSWER 22 OF 24 CAPLUS COPYRIGHT 2002 ACS
AN 1995:634550 CAPLUS
DN 123:27224
TI Genes encoding branched-chain alpha-**ketoacid dehydrogenase complex** from Streptomyces and manufacture of avermectin with recombinant Streptomyces
IN Denoya, Claudio D.
PA Pfizer Inc., USA
SO PCT Int. Appl., 65 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI	WO 9504150	A1	19950209	WO 1994-IB127	19940530
	W: AU, BR, CA, CN, CZ, FI, JP, KR, NO, NZ, PL, RU, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2167520	AA	19950209	CA 1994-2167520	19940530
	AU 9466572	A1	19950228	AU 1994-66572	19940530
	EP 711349	A1	19960515	EP 1994-915252	19940530
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE				
	CN 1128046	A	19960731	CN 1994-192935	19940530
	JP 08507931	T2	19960827	JP 1994-505711	19940530
	JP 2807348	B2	19981008		
	BR 9407211	A	19960917	BR 1994-7211	19940530
	PL 177922	B1	20000131	PL 1994-312733	19940530
	PL 181778	B1	20010928	PL 1994-333908	19940530
	PL 181916	B1	20011031	PL 1994-333909	19940530
	HU 71323	A2	19951128	HU 1994-2192	19940725
	HU 218964	B	20010129		
	ZA 9405639	A	19960129	ZA 1994-5639	19940729
	US 5728561	A	19980317	US 1995-482385	19950607
	FI 9600401	A	19960129	FI 1996-401	19960129
	NO 9600372	A	19960129	NO 1996-372	19960129
	CN 1208078	A	19990217	CN 1997-108795	19971217
	AU 9894218	A1	19990304	AU 1998-94218	19981127
	AU 712442	B2	19991104		
	CZ 289866	B6	20020417	CZ 2000-345	20000128
	CZ 289136	B6	20011114	CZ 2000-2929	20000809
PRAI	US 1993-100518	A	19930730		
	AU 1994-66572	A3	19940530		
	WO 1994-IB127	W	19940530		
	US 1995-432330	A3	19950501		

L7 ANSWER 23 OF 24 CAPLUS COPYRIGHT 2002 ACS
AN 1994:76209 CAPLUS
DN 120:76209
TI Effect of dietary protein on the liver content and subunit composition of the branched-chain .alpha.-**ketoacid dehydrogenase complex**
AU Zhao, Yu; Popov, Kirill M.; Shimomura, Yoshiharu; Kedishvili, Natalia Y.; Jaskiewicz, Jerzy; Kuntz, Martha J.; Kain, Joy; Zhang, Bei; Harris, Robert A.
CS Sch. Med., Indiana Univ., Indianapolis, IN, 46202-5122, USA
SO Arch. Biochem. Biophys. (1994), 308(1), 446-53
CODEN: ABBIA4; ISSN: 0003-9861
DT Journal
LA English

L7 ANSWER 24 OF 24 CAPLUS COPYRIGHT 2002 ACS
AN 1973:133263 CAPLUS
DN 78:133263
TI Gene-protein relations of the .alpha.-keto acid dehydrogenase complexes of Escherichia coli K12. Isolation and characterization of lipoamide dehydrogenase mutants
AU Guest, J. R.; Creaghan, I. T.
CS Dep. Microbiol., Sheffield Univ., Sheffield, Engl.
SO J. Gen. Microbiol. (1973), 75(Pt. 1), 197-210
CODEN: JGMIAN
DT Journal
LA English

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L7 ANSWER 9 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1994:389512 BIOSIS
DN PREV199497402512

TI Site-directed mutagenesis of phosphorylation sites of the branched chain alpha-**ketoacid dehydrogenase complex**.
AU Zhao, Yu; Hawes, John; Popov, Kirill M.; Jaskiewicz, Jerzy; Shimomura, Yoshiharu; Crabb, David W.; Harris, Robert A. (1)
CS (1) Dep. Biochem. Mol. Biol., Indiana Univ. Sch. Med., 635 Barnhill Dr., Indianapolis, IN 46202-5122 USA
SO Journal of Biological Chemistry, (1994) Vol. 269, No. 28, pp. 18583-18587. ISSN: 0021-9258.
DT Article
LA English

L7 ANSWER 16 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1991:112923 BIOSIS
DN BA91:60313
TI PHYLOGENETIC COMPARISONS OF THE BRANCHED-CHAIN ALPHA **KETOACID DEHYDROGENASE COMPLEX**.
AU EISENSTEIN R S; MILLER R H; HOGANSON G; HARPER A E
CS DEP. BIOCHEMISTRY, COLLEGE AGRICULTURAL AND LIFE SCIENCES, UNIVERSITY WISCONSIN-MADISON, MADISON, WIS. 53706, USA.
SO COMP BIOCHEM PHYSIOL B COMP BIOCHEM, (1990) 97 (4), 719-726. CODEN: CBPBB8. ISSN: 0305-0491.
FS BA; OLD
LA English

L7 ANSWER 22 OF 24 CAPLUS COPYRIGHT 2002 ACS
AN 1995:634550 CAPLUS
DN 123:27224
TI Genes encoding branched-chain alpha-**ketoacid dehydrogenase complex** from Streptomyces and manufacture of avermectin with recombinant Streptomyces
IN Denoya, Claudio D.
PA Pfizer Inc., USA
SO PCT Int. Appl., 65 pp. CODEN: PIXXD2
DT Patent
LA English
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	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	W: AU, BR, CA, CN, CZ, FI, JP, KR, NO, NZ, PL, RU, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2167520	AA	19950209	CA 1994-2167520	19940530
	AU 9466572	A1	19950228	AU 1994-66572	19940530
	EP 711349	A1	19960515	EP 1994-915252	19940530
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE				
	CN 1128046	A	19960731	CN 1994-192935	19940530
	JP 08507931	T2	19960827	JP 1994-505711	19940530
	JP 2807348	B2	19981008		
	BR 9407211	A	19960917	BR 1994-7211	19940530
	PL 177922	B1	20000131	PL 1994-312733	19940530
	PL 181778	B1	20010928	PL 1994-333908	19940530
	PL 181916	B1	20011031	PL 1994-333909	19940530
	HU 71323	A2	19951128	HU 1994-2192	19940725
	HU 218964	B	20010129		
	ZA 9405639	A	19960129	ZA 1994-5639	19940729
	US 5728561	A	19980317	US 1995-482385	19950607
	FI 9600401	A	19960129	FI 1996-401	19960129
	NO 9600372	A	19960129	NO 1996-372	19960129
	CN 1208078	A	19990217	CN 1997-108795	19971217
	AU 9894218	A1	19990304	AU 1998-94218	19981127
	AU 712442	B2	19991104		
	CZ 289866	B6	20020417	CZ 2000-345	20000128
	CZ 289136	B6	20011114	CZ 2000-2929	20000809

PRAI US 1993-100518 A 19930730
AU 1994-66572 A3 19940530
WO 1994-IB127 W 19940530
US 1995-432330 A3 19950501

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L7 ANSWER 9 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Regulation of the branched chain alpha-**ketoacid dehydrogenase complex**, the rate-limiting enzyme of branched chain amino acid catabolism, involves phosphorylation of 2 amino acid residues (site 1, serine 293; site 2, serine 303). To directly assess the roles played by these sites, site-directed mutagenesis was used to convert these serines to glutamates and/or alanines. Functional **E1** heterotetramers were expressed in Escherichia coli carrying genes for **E1**-alpha and **E1**-beta under control of separate T7 promoters in a dicistronic vector. Mutation of phosphorylation site 1 serine to glutamate inactivated **E1** activity, i.e., mimicked the effect of phosphorylation of site 1. Replacement of the site 1 serine with alanine greatly increased K-m for the alpha-ketoacid substrate but had no effect on maximum velocity. The site 1 serine to alanine mutant was phosphorylated at site 2, but phosphorylation had no effect upon enzyme activity. Mutation of site 2 serine to either glutamate or alanine also had no effect upon enzyme activity, but phosphorylation of these proteins at site 1 inhibited enzyme activity. **E1** mutated to change both phosphorylation site serines to glutamates was without enzyme activity. The binding affinity of **E1** to the **E2** core was not affected by mutation of the phosphorylation sites to glutamates, suggesting no gross perturbation of the association of **E1** with the **E2** core. The results provide direct evidence that a negative charge at phosphorylation site 1 is responsible for kinase-mediated inactivation of **E1**. Site 2 is silent with respect to regulation of activity by phosphorylation.
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L7 ANSWER 16 OF 24 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AB Antibodies against the **E1b** and **E2b** components of bovine branched-chain .alpha.-ketoacid (BCKA) dehydrogenase (BCKAD) complex completely inhibited BCKA oxidation in mammalian and avian mitochondria. BCKA oxidation by salmonid mitochondria was less affected and the enzyme from Pseudomonas putida was unaffected. In rodents, anti-**E1b E2b** IgG inhibited oxidation of all three BCKA in a similar dose-dependent manner; oxidation of .alpha.-ketobutyrate and .alpha.-keto-.gamma.-methiolbutyrate was also partially inhibited. Except for the salmonid BCKAD, a similar Mr for the **E2b** and **E1b** .alpha. proteins was observed in these species. After digestion with V-8 protease similar immunoreactive peptides were observed for the human and rodent complex.

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L7 ANSWER 22 OF 24 CAPLUS COPYRIGHT 2002 ACS

AB The present invention relates to DNA sequences that encode the branched-chain alpha-**ketoacid dehydrogenase complex** of an organism belonging to the genus Streptomyces and to polypeptides produced by the expression of such sequences. It also

relates to methods of enhancing the prodn. of natural avermectin and of producing avermectin through fermn.. The bkd genes for A. avermitilis **E1**.alpha., **E1**.beta., and **E2** subunits were cloned, sequenced, and expressed in E. coli.

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